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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/062,758	01/29/2002	Steven B. Elgee	10013857 -1	2415

7590 09/27/2002

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EXAMINER
LIANG, LEONARD S

ART UNIT	PAPER NUMBER
2853	

DATE MAILED: 09/27/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/062,758	ELGEE ET AL.	
	Examiner	Art Unit	
	Leonard S Liang	2853	

-- The MAILING DATE of this communication appears on the cover she t with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-42 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-42 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 29 January 2002 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 20. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: 6, 7B, 7C, 51, 52, 127, 131. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claim 26 is objected to because of the following informalities: Claim 26 states "A method according to claim 22 wherein **said placing step** comprises controllably advancing media in a feed direction through the printzone." There is no antecedent basis for "said placing step". It will be construed that the claim should state "A method according to claim 22, further comprising controllably advancing media in a feed direction through the printzone." Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 11, 22, 26-27, 31-33, 37-38, and 41-42 are rejected under 35 U.S.C. 102(b) as being anticipated by Vincent et al (US Pat 5041846).

Vincent et al discloses:

- {claim 1} An inkjet printing mechanism (column 1, lines 9-12) comprising media support (inherent to invention); carriage (figure 1, references 20, 40); heating element supported by the carriage (figure 1, references 60, 70)

U.S. Patent Aug. 20, 1991 Sheet 1 of 2 5,041,846

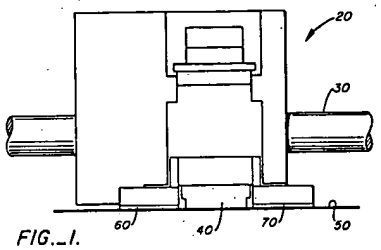


FIG._1.

- {claim 11} printhead directs ink droplets into the printzone and onto the media (figure 1, reference 40), and the heating element creates a heat zone at a surface of the media (figure 1, references 60, 70; heat zone inherently defined between them)
- {claims 22, 27, 38} reciprocating a carriage across a printzone and projecting from the carriage radiant energy applied as heat energy (as taught in claim 1); projecting from the carriage ink droplets (figure 1, reference 40); placing media in a printzone for print imaging (inherent to invention)
- {claim 26} controllably advancing media in a feed direction through the printzone (figure 3, reference A; column 3, lines 56-68)

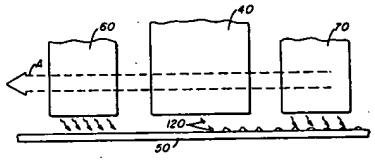


FIG._3.

- {claim 31} applying ink having an evaporatable component (column 1, lines 16-19; column 4, lines 2-5); moving a heat zone to accelerate evaporation (column 4, lines 2-5)
- {claim 32} scanning a heating element across the media (figure 1, references 60, 70)
- {claim 33} scanning a printhead across the media (figure 1, reference 40)

- {claim 37} advancing the media through the printzone (as taught in claim 26)
- {claim 41} inkjet printing device projecting ink droplets (figure 1, reference 40; column 1, lines 9-12)
- {claim 42} reciprocating printing device projecting ink droplets along a print swath (column 2, lines 66-67; column 3, lines 1-12; print swath height inherent to the invention); a heat swath height (The specification teaches that "A relatively longer heat swath height 125a, however, allows for multiple passes over previously printed print swaths of swath height 25a." Vincent et al teaches that a print line is heated before and after ink is deposited (column 3; lines 10-12) and that heat energy goes through at least first and second reciprocation (column 2, lines 13-15) Thus, multiple passes over print swaths are inherent to the invention, and consequently, it is implied that the heat swath height is greater than the print swath height.)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 2-4, 10, 24, 29, 34-35, 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vincent et al (US Pat 5041846) in view of Carreira et al (US Pat 5220346).

Vincent et al discloses:

- {claim 1} An inkjet printing mechanism (as taught above)
- {claim 22} A method of applying print imaging (as taught above)
- {claim 27} A printing method (as taught above)
- {claim 31} A printing method (as taught above)

- {claim 38} An inkjet printing mechanism (as taught above)
- {claim 3} heating element includes first and second portions (figure 1, references 60, 70; heat zone inherently defined between them)
- {claim 4} heat zone scans synchronously with the carriage (figure 1, references 20, 60, 70)

Vincent et al differs from the claimed invention in that it does not disclose:

- {claim 2, 10, 24, 29, 34, 39} microwave heating element, microwave applicator, microwave heater, microwave heating, means for applying heat energy comprises a microwave energy source
- {claim 35} generating the heat zone from opposing surfaces of the media

Carreira et al discloses:

- {claim 2, 10, 24, 29, 34, 39} microwave heating element, microwave applicator, microwave heater, microwave heating, means for applying heat energy comprises a microwave energy source (figure 7A, reference 13; column 1, lines 7-18; column 10, lines 61-66). Carreira teaches that an "object of the present invention is to provide thermal ink printing processes employing microwave drying of the images which enable good print quality and minimal showthrough and strikethrough." (column 4, lines 33-37)

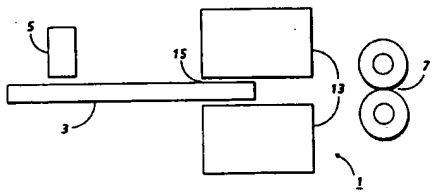


FIG. 7A

- {claim 35} generating the heat zone from opposing surfaces of the media (figure 7A, references 13, 15; column 10, lines 61-68)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to replace the heaters disclosed by Vincent et al with the microwave heater disclosed by Carreira et al. The motivation for the skilled artisan in doing so is to gain the benefit of obtaining good print quality and minimal showthrough and strikethrough, as taught

above. The combination naturally suggests that the heat zone is generated from opposing surfaces of the media.

5. Claims 5-7, 9, 25, 30, 36, 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vincent et al (US Pat 5041846) in view of Woo et al (US Pat 5645904).

Vincent et al discloses:

- {claim 1} An inkjet printing mechanism (as taught above)
- {claim 22} A method of applying print imaging (as taught above)
- {claim 27} A printing method (as taught above)
- {claim 31} A printing method (as taught above)
- {claim 38} An inkjet printing mechanism (as taught above)
- {claim 6} heating element includes first and second portions (figure 1, references 60, 70; heat zone inherently defined between them)
- {claim 7} heat zone scans synchronously with the carriage (figure 1, references 20, 60, 70)

Vincent et al differs from the claimed invention in that it does not disclose:

- {claims 5, 9, 25, 30, 36, 40} radio frequency heating element, radio frequency applicator, RF heater, RF heating, means for applying heat energy comprises an RF energy source

Woo et al (US Pat 5645904) discloses:

- {claims 5, 9, 25, 30, 36, 40} radio frequency heating element, radio frequency applicator, RF heater, RF heating, means for applying heat energy comprises an RF energy source (figure 5, reference 60; column 1, lines 10-18). Woo et al teaches that "Electromagnetic energy at radio frequencies (RF) is used to efficiently heat and seal certain materials" (column 1, lines 16-18)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to replace the heaters disclosed by Vincent et al with the RF heater disclosed by Woo et al. The motivation for the skilled artisan in doing so is to gain the benefit of efficient heating and sealing, as taught above.

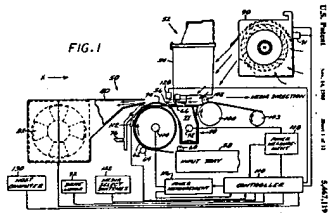
6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vincent et al (US Pat 5041846) in view of Richtsmeier et al (US Pat 5467119).

Vincent et al discloses:

- {claim 1} An inkjet printing mechanism (as taught above)

Vincent et al differs from the claimed invention in that it does not disclose a stationary blower.

Richtsmeier et al (US Pat 5467119) discloses, with respect to claim 8, a crossflow fan (i.e. stationary blower; figure 1, reference 90; abstract).



Richtsmeier teaches that "A crossflow fan at the exit side of the print zone direct an airflow at the print zone in order to cause turbulence at the medium surface being printed and further accelerate evaporation of the ink carriers from the medium." (abstract)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the stationary blower disclosed by Richtsmeier et al into the invention of Vincent et al in order to produce an airflow directed at media when in the printzone. The motivation for the skilled artisan in doing so is to gain the benefit of accelerating evaporation of the ink carriers from the medium, as taught above.

7. Claims 12-13, 23, 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vincent et al (US Pat 5041846) in view of Kupcho et al (US Pat 5670995) and Carreira et al (US Pat 5220346).

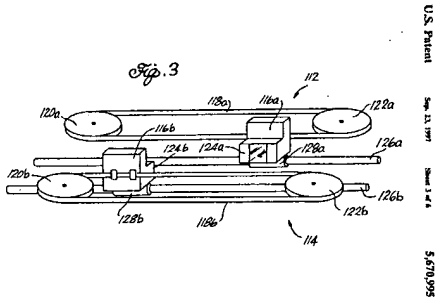
Vincent et al discloses, with respect to claims 12 and 13, a heater disposed on the carriage (figure 1, references 60, 70)

Vincent et al differs from the claimed invention in that it does not disclose:

- {claim 12} second scanning cartridge, wherein the heating element has first and second portions each supported by the first carriage and second carriage respectively
- {claim 13} first and second heating element portions define a gap therebetween, the gap comprising a heat zone generated by the heating element
- {claims 23 and 28} synchronously scanning a second carriage relative to the first carriage, the second carriage holding a heater element cooperative with the heater on the first carriage to apply the heat energy to the media.

Kupcho et al discloses

- {claims 12-13} a second scanning cartridge (figure 3, references 112, 144; column 3, lines 32-37). Kupcho et al teaches that there are first and second scanning cartridges "so as to effectuate simultaneous printing on both sides of a piece of paper." (column 3, lines 46-47)



- {claims 23 and 28} synchronously scanning second carriage (figure 3, references 112, 114; column 3, lines 46-47; Merriam-Webster's Collegiate Dictionary Tenth Edition defines synchronous as "happening, existing, or arising at precisely the same time"; in the invention, the scanning of the first and second carriages happen at the same time; hence they are synchronously scanned) Kupcho et al teaches the benefit of effectuating simultaneous printing on both sides of a piece of paper (as taught above).

Carreira et al discloses:

- {claims 12-13} heating element with first and second portions (figure 7A, reference 13), wherein the first and second heating element portions define a gap therebetween (figure 7A, reference 15; column 10, lines 61-68; it is inherent to

the invention that the gap comprises a heat zone generated by the heating element) Carreira teaches that the benefit of using this invention is to "enable good print quality and minimal showthrough and strikethrough (column 4, lines 33-37).

- {claims 23 and 28} second heater element portion (figure 7A, reference 13)

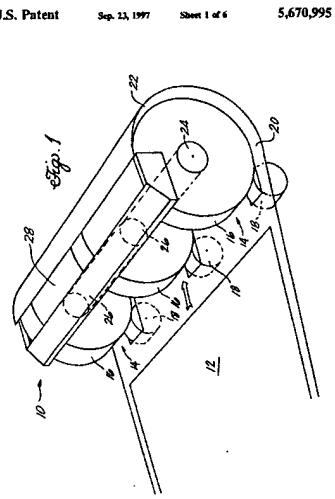
It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the second scanning cartridge disclosed by Kupcho et al into the invention of Vincent et al. It would have been further obvious to one having ordinary skill in the art at the time the invention was made to incorporate the heating element portions disclosed by Carreira et al into the modified invention so that there are first and second drying portions, each supported by the first and second carriage, respectively, wherein the first and second heating element portions define a gap therebetween. It would have been further obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teachings of Kupcho et al and Carreira et al into the invention of Vincent et al so that the second carriage is synchronously scanned relative to the first carriage, the second carriage holding a heater element cooperative with the heater on the first carriage to apply the heat energy to the media. The motivation for the skilled artisan in doing so is to gain the benefit of effectuating simultaneous printing on both sides of a piece of paper, while also enabling good print quality and minimal showthrough and strikethrough, as taught above.

8. Claims 14-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kupcho et al (US Pat 5670995) in view of Carreira et al (US Pat 5220346).

Kupcho discloses:

- {claim 14} An inkjet printing mechanism (column 1, lines 6-9) comprising a printzone (inherent to invention); a first carriage (figure 3, reference 112) located on a first side of the printzone, a second carriage (figure 3, reference 114) located on a second side of the printzone (column 1, lines 6-9)

- {claim 15} print media has a print surface exposed to the printhead to receive ink therefrom, and has an opposing surface opposite the print surface (figure 2, references 12, 44; opposing surface inherent to invention)



- {claim 16} the first side of the printzone faces the media print surface and the second side of the printzone faces the media opposing surface (figures 2-3; column 1, lines 6-9)
- {claim 17} printhead projects ink droplets into the printzone (inherent to invention)
- {claim 20} printing mechanism synchronously scans the first and second carriages (column 3, lines 46-47; Merriam-Webster's Collegiate Dictionary Tenth Edition defines synchronous as "happening, existing, or arising at precisely the same time"; in the invention, the scanning of the first and second carriages happen at the same time; hence they are synchronously scanned)

Kupcho et al differs from the claimed invention in that it does not disclose:

- {claim 14} first and second heater element portions disposed on opposite sides of printing substrate (figure 7A, references 3, 13)
- {claim 17} print imaging receiving heat energy from the heater element
- {claim 18} An inkjet printing mechanism wherein the first heater element portion comprises a microwave energy source and a first portion of a waveguide; the second heater element portion comprises a microwave load and a second portion

of a waveguide; the first and second waveguide portions together forming a waveguide directing microwave energy from the source to the load; and the printzone occupies space between the first portion of the waveguide and the second portion of the waveguide

- {claim 19} the first and second heater element portions cooperatively form a microwave applicator
- {claim 21} microwave heating element

Carreira et al discloses:

- {claim 14} first and second heater element portions disposed on opposite sides of printing substrate (fig 7A, refs 3, 13). Carreira et al teaches that the invention enables "good print quality and minimal showthrough and strikethrough" (column 4, lines 33-37)
- {claim 18} first heater element portion comprises a first portion of a waveguide (figure 7A, reference 13; column 10, lines 61-68); second heater element portion comprises second portion of waveguide (figure 7A, reference 13; column 10, lines 61-68); first and second waveguide portions forming a waveguide (source and load are inherent to the invention); printzone occupies space between the first and second portions of waveguide (figure 7A, references 3, 15; column 10, lines 61-68)
- {claim 19} first and second heater elements cooperatively form a microwave applicator
- {claim 21} microwave heating element (figure 7A, reference 13; column 10, lines 61-68; microwave source and load are inherent to invention).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teachings of Carreira et al into the invention of Kupcho et al so that there are first and second heater element portions disposed on opposite sides of the printing substrate; the print imaging receives heat energy from the heater element; there is an inkjet printing mechanism wherein the first heater element portion comprises a microwave energy source and a first portion of a waveguide; the second heater element portion comprises a

microwave load and a second portion of a waveguide; the first and second waveguide portions together forming a waveguide directing microwave energy from the source to the load; and the printzone occupies space between the first portion of the waveguide and the second portion of the waveguide; and the first and second heater element portions cooperatively form a microwave applicator. The motivation for the skilled artisan in doing so is to gain the benefit of enabling good print quality and minimal showthrough and strikethrough, as taught above.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Wilson (US Pat 4839741) discloses an image reproducing apparatus with CCD scanner and bubble jet printer simultaneously driven by a common belt in opposite directions and operated asynchronously.

Ort (US Pat 4340893) discloses a scanning dryer for ink jet printers.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard S Liang whose telephone number is (703) 305-4754. The examiner can normally be reached on 8:30-5 Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (703) 308-3126. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7724 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

lsl LSL
September 18, 2002

John Barlow
Supervisory Patent Examiner
Technology Center 2800